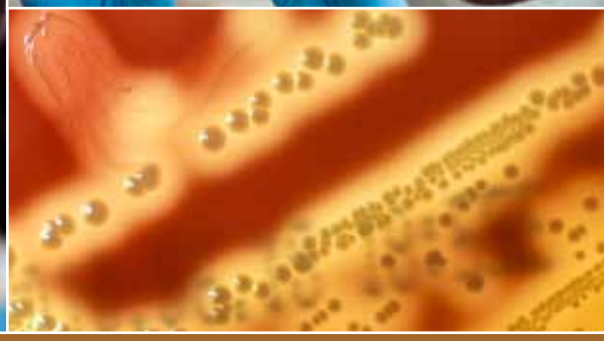
Northern Territory Government

DEPARTMENT OF **HEALTH AND FAMILIES**



Northern Territory Guidelines for Acute

Post-Streptococcal Glomerulonephritis

2010

www.**healthynt**.nt.gov.au

healthy Territory

A Territory Government initiative

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Version	Date	Changes
1.0	Dec 2002	
2.0	June 2010	Revised by CDC
2.1	April 2014	Amended text p4. Probable cases (clinical cases) should be notified to CDC and have the public health action implemented (ie screening of family, household and close contacts), if the consulting paediatrician considers the child to have post streptococcal glomerulonephritis.

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The *Guidelines for the Control of Acute Post-Streptococcal Glomerulonephritis in the Northern Territory* (NT) are intended to provide a framework for the public health response to both sporadic cases and community outbreaks of acute post-streptococcal glomerulonephritis (APSGN). The initial guideline produced in December 2002 provided:

- background information about the epidemiology of APSGN in the NT
- a case definition for APSGN which is notifiable by doctors, in the NT
- preventive measures; and
- the public health response to sporadic cases and community outbreaks.

The updated guideline can be downloaded from:
http://www.health.nt.gov.au/Centre_for_Disease_Control/Publications/CDC_Protocols/index.aspx

The June 2010 guidelines were updated in consultation with consultant paediatricians, infectious diseases and renal physicians, remote health staff and Centre for Disease Control staff.

Changes in this edition include:

- updated epidemiology and a revised case definition
- broadening the immediate target age group for prophylactic antibiotics to 1 to less than 17 years.
- NT case numbers that should prompt an increased awareness NT-wide for cases of APSGN.
- specific timing and coverage targets for community screening following an outbreak of APSGN

Background

Acute post-streptococcal glomerulonephritis (APSGN) is an inflammatory disease of the kidneys which occurs 2 to 3 weeks after skin or throat infection with a particular type of bacteria called group A streptococcus (GAS), or occasionally groups C or G streptococcus. In the Northern Territory (NT) most cases follow skin rather than throat infections because skin infections are the more common problem. Not all types of streptococcus cause kidney problems but only those caused by 'nephritogenic' strains. Therefore in the setting of APSGN obtaining and characterising streptococcal isolates may better guide public health response.

APSGN can cause haematuria, high blood pressure, oedema and poor renal function. It most commonly affects children but can occur at any age. For each clinical case of APSGN there are likely to be 3 to 4 cases of sub-clinical disease. The usual outcome is one of complete recovery. Long term follow-up studies show up to 20% of patients have persisting abnormal urine analyses but the incidence of azotemia is less than 1%.[1,2,3,4] The outcomes may be worse in adults. Frequent cases of mild APSGN may be a contributing factor to chronic renal disease in Australian Aboriginals.[5,6,7]

The NT has one of the highest incidence of APSGN in the world with rates in Indigenous Australian children under 15 years of 94.3 per 100,000 person years.[8] APSGN predominantly affects children between 12 months and 17 years of age. Cases occur year round but in the Top End there is a peak between April and June.[8] Sporadic cases and small clusters occur yearly with larger and more widespread outbreaks occurring approximately every 5 years,[8] associated with the circulation of a nephritogenic strain of streptococcus. In communities with high levels of scabies, skin sores and overcrowded living conditions new strains spread very quickly. Treatment with intramuscular (IM) penicillin prevents transmission of GAS to other children.[9] It is not known whether treatment changes the course of, or prevents, APSGN in children already infected with nephritogenic strains of GAS.

In the absence of any intervention, new cases can continue for several months.

Case Definition of APSGN

Reporting

Both confirmed cases and probable cases should be notified. Possible cases should be reported to Centre for Disease Control (CDC) but not notified to NTNDS.[1]

Confirmed case

A confirmed case requires either:

1. laboratory definitive evidence

OR

2. laboratory suggestive evidence AND clinical evidence.

Probable case

A probable case requires clinical evidence only.

Possible case

A possible case requires laboratory suggestive evidence only.

Laboratory definitive evidence

Renal biopsy suggestive of APSGN.

Laboratory suggestive evidence

1. Haematuria on microscopy (RBC >10/µl)[2]

AND

2. Evidence of recent streptococcal infection (positive Group A Streptococcal culture from skin or throat, or elevated ASO titre or Anti-DNase B)[3]

AND

3. Reduced C3 level.

Clinical evidence

At least 2 of the following

- facial oedema
- >= moderate haematuria on dipstick
- hypertension[4]
- peripheral oedema

Notes

1. Possible (subclinical cases) are often found when screening individuals for APSGN but do not present with more than 1 clinical symptom. They do not have oedema or hypertension but on laboratory investigation are found to have haematuria, evidence of a streptococcal infection and a reduced C3. These cases should also be reported to CDC.
2. If microscopy is not available then moderate haematuria on dipstick fulfils this criteria.
3. If all other criteria have been fulfilled but the only evidence of recent streptococcal infection is isolation of Group C or Group G Streptococci from skin or throat, this could be notified as a confirmed case after discussion with CDC or an infectious disease physician.
4. Hypertension as defined in CARPA Standard Treatment Manual.[10]

Control of APSGN

1. Prevention

Control of scabies and skin sores

In the NT, scabies infestation is the major cause of infected skin sores that carry the streptococcus.

To help prevent epidemics of APSGN:

- promote community control of scabies and skin sores
- promote regular washing, especially of children, to decrease spread of the bacteria
- treat skin sores with a single IM dose of benzathine penicillin.*

For further information refer to the:

- section on skin infections in CARPA *Standard Treatment Manual*[10]
- *Guidelines for Community Control of Scabies and Skin Sores and Crusted Scabies in the Northern Territory,* 2010.[11]

Improved housing

Housing construction and maintenance are beyond the direct control of health centre staff. However, it is important that health staff support initiatives that improve housing, reduce overcrowding and subsequent overuse of household facilities, as these are major contributing factors in the spread of all communicable diseases.

2. Sporadic (single) clinical cases of APSGN

Single cases may or may not indicate the beginning of an outbreak.

All suspected cases should be:

- managed in consultation with a paediatrician (and ideally hospitalised)
- notified by telephone to your regional CDC.

Adult cases should be:

- managed in consultation with a nephrologist
- notified by telephone to your regional CDC.

In patients presenting with a clinically compatible illness of oedema, haematuria and/or hypertension the skin needs to be inspected for evidence of skin sores or scabies with:

- a swab taken from 2 different skin sores if present, otherwise a throat swab, if indicated, for identification of GAS.
- blood collected to measure ASO, antiDNAase B titres and C3.

On the pathology request form please provide clinical information (including “to establish or rule out APSGN”). After the laboratory specimens have been collected, treatment of skin sores is recommended by administration of benzathene penicillin according to the person’s weight. Treat scabies, if present, with 5% permethrin, (refer to *Guidelines for Community Control of Scabies, Skin Sores and Crusted Scabies in the Northern Territory*[11]).

Prevention of further disease following a single case

The family, household and close contacts (close friends and intimate contacts are defined as those staying in the house in the 2 weeks preceding the onset of the illness) of the case should be examined for APSGN and if aged 12 months to less than 17 years also given an injection of benzathene penicillin.

Examination of contacts involves:

- inspection of the skin for sores, scabies and oedema
- measuring the blood pressure for hypertension
- testing urine for the presence of haematuria

(see screening form for family, household and close contacts, Appendix 1).

If the person fulfils the clinical case definition (2 of the clinical signs ie haematuria, facial oedema, peripheral oedema, and/or hypertension) then laboratory testing should occur. If there is only 1 clinical sign present then discuss with the District Medical Officer and review within 1 week.

All contacts with skin sores should have;

- swabs collected for culture and be treated with LA Bicillin (contacts in the 12 months to less than 17 year age group require LA Bicillin regardless of whether skin sores are present or not).

Probable cases (clinical cases) should be notified to CDC and have the public health action implemented (ie screening of family, household and close contacts), if the consulting paediatrician considers the child to have post streptococcal glomerulonephritis.

All individuals identified with scabies and their contacts should be treated with 5% permethrin.

Some cases will require admission for management of high blood pressure and, sometimes, renal failure. All cases should be followed up by the doctor and have a blood test 6 to 8 weeks later to confirm the C3 level has returned to normal.

3. Cases requiring broader public health action

NT case numbers prompting a public health alert

When there are 4 APSGN cases, probable or confirmed, notified from anywhere in the NT within a 2 week period historical data would indicate that the CDC should issue a Territory-wide alert to all medical officers and communities to raise awareness for diagnosing and reporting cases. Educational messages for communities should be circulated.

Community outbreaks

Definition

2 cases, either probable or confirmed, living in the same community and;

- onset within a week of each other
- at least one case has a low C3
- the cases are not contacts of each other

* See dosage chart P6

OR

1 confirmed case and 2 probable cases living in the same community and;

- onset within 1 month of each other
- none are contacts of each other.

Outbreak intervention

What to do

If the threshold for a community outbreak is met, discussion with the CDC is required to co-ordinate an outbreak response by the community to control the spread of GAS. Consultation between health staff and the local health board or senior members of the community is important.

In addition to examining and treating contacts of cases (as described in section 2), there should be a community education program and a community-wide screening program to halt further streptococcal transmission.

- Community education should target health staff, parents and teachers in particular. The use of written health alerts and verbal discussions with prominent community members are essential to reach a range of people (for examples of alerts see Appendices 2, 3).
- Screening of all children in the community aged 12 months to less than 17 years for oedema, skin sores and scabies but not blood pressure or urinalysis unless otherwise indicated (see community screening form Appendix 1).
- If oedema is present then the child must be examined thoroughly for manifestations of APSGN (do urinalysis and blood pressure and discuss with the District Medical Officer).
- If skin sores are present administration of IM benzathene penicillin is recommended (collection of a representative number of swabs for culture should be discussed with CDC).
- If scabies are identified then treatment of the case and all household contacts with 5% topical permethrin is recommended.

Implementation

For implementation the following issues need to be addressed.

Permission

Permission should be sought for the screening to occur in the clinic, school and community to alert all parties involved and gain their support so as to improve the number of children able to be screened.

Where screening outside of the home or in a setting where verbal permission is not obtained from the parent or guardian e.g. at a school, prior written consent should be obtained from parents or guardians to screen those children aged 12 months to less than 17 years for skin sores, scabies and oedema (see Appendix 4).

Population lists

A population list is essential to identify the number of children that require screening and to record the results (see Community Screening Report, Appendix 1). Population lists are often held by the

clinic or from sources such as the Primary Care Information System (PCIS).

Access to population to be screened

Most interventions are done in co-operation with teachers to find and treat children at school.

Parents often bring younger children to the health centre if there has been good publicity about the problem, otherwise door to door household visits may be the only way to find and treat children who do not go to school.

Previous experience has shown that it is unlikely that sufficient children will be screened without door to door visits. Planning for implementing this by checking against the population lists and community maps should be considered.

Timing and coverage targets

Completion of community screening and treatment should ideally occur within 1 week from the time that the decision to screen is made. For an intervention to be considered adequate at least 85% of those aged 12 months to less than 17 years should have been screened and given appropriate treatment.

Treatment

For planning purposes, it should be assumed that 25% of the population under 17 years will require penicillin. However sores may affect over 50% of children in a community.[12]

Remember that skin sores should be treated even without an outbreak of APSGN. The intervention allows the opportunity to enhance standard treatment, halt an epidemic and provide education about scabies, skin sores, APSGN and how to prevent the spread of infections (refer to section on prevention).

Documentation

It is important that the data collected by the communities during an intervention be reported and a copy added to the cumulative file on APSGN and outbreaks in CDC for evaluation purposes. The screening forms and Community Screening Report (Appendix 1) should be returned to CDC.

4. Dosage table for benzathine penicillin

Weight	Dose of benzathine penicillin (LA Bicillin)*	Amount
3kg to <6kg	225mg	0.6mL
6 to<10kg	337.5mg	0.86mL
10 to <15 kg	450mg	1.15mL
15 to <20 kg	675mg	1.73mL
20 kg or more	900mg	2.3mL

Please note that doses in mL differ from the CARPA as the current preparation of Bicillin LA comes as 900mg in 2.3ml.

*Those allergic to penicillin should receive appropriate alternative treatment such as oral roxithromycin, as a daily dose for 10 days. Check recommendations in the *Therapeutic Guidelines: Antibiotic*[13] *or CARPA Standard Treatment manual.*[10]

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Appendix 1

Reporting forms

Screening form for contacts of APSGN (family, household and close contacts)

Community screening form (children 12 months to less than 17 years)

Community screening report

Screening form for contacts of APSGN (family, household and close contacts)

CASE

LOCATION

Name	DOB	HRN	Scabies	Skin sores	Oedema	Urine	BP	LAB	Lyclear	Other	Swab
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N
			Y/N	Y/N	Y/N			Y/N	Y/N		Y/N

Community screening form (children 12 months to less than 17 years)

Name	DOB	Sex	Ethnic Gp	Scabies	Lyclear	Sores	LA Bicillin	Oedema	Refer to MO*	Other
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
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		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
		M/F	A/O	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	

* For those with oedema, do urinalysis and blood pressure and refer to medical officer

Community Screening Report

Date	
Community	
Screening coordinator	
No of children screened	
Total number of children aged 12 months to less than 17 years	
No of children with skin sores	
No of children with scabies	
Number of children with oedema	
Number of children referred to DMO	
Number of probable cases of APSGN	
Number of cases of confirmed APSGN	

Please return this report with the screening forms to

Head of Surveillance
Centre for Disease Control
PO Box 40596
Casuarina NT 0811

Or

Facsimilie 08 8922 8310

Appendix 2

Health Alert

Kidney disease spreading

Date: ……..

If your child has

- puffy / swollen eyes or face
- dark urine
- skin sores
- scabies

take them to the clinic to be checked immediately

Some children are sick due to a kidney disease. This infection can get in through skin or sores or sometimes a sore throat. This type of infection can spread quickly to lots of children.

To stop the sickness from spreading go to the clinic for treatment.

Appendix 3

Date

Health Alert: Outbreak of Acute Post-Streptococcal Glomerulonephritis

There is an outbreak of post-streptococcal kidney disease in …… at the moment.

If any children present with puffy faces, sores or dark coloured urine then check them for:-

- weight (look for sudden increase)
- BP (look for increase)
- urine (look for blood and protein)
- oedema (puffy face and eyes)

Other clinics also need to be on the lookout for children with these symptoms.

Any kids with sores should be given LA Bicillin and treatment for scabies if needed.

Please notify your GP or the DMO on call of any you think might have post-streptococcal kidney disease (APSGN).

Appendix 4

HEALTH CENTRE CONSENT FORM

Due to the cases of the kidney disease called acute post-streptococcal glomerulonephritis (APSGN) found in our community it is important that we check all children aged 12 months to less than 17 years to find any more sick children and stop the spread of the infection.

The health staff will be looking at the skin for sores and scabies and checking to see of their eyes or face are puffy.

If any skin sores are present the recommended treatment is an injection of penicillin and/or cream for scabies.

If your consent is given screening will be done at the school where possible or in the community.

If your child requires treatment and you choose to be present we will contact you.

If you do not wish to be present the treatment will be given in the presence of health care staff.

If you have any concerns then please contact the health clinic.

I ……parent/guardian

give consent for……

- to be screened for the kidney problem APSGN **YES / NO**
- to be given a penicillin injection **without my presence** if they have any skin sores **YES / NO**
- to be given a penicillin injection **in my presence** if they have skin sores **YES / NO**
- to be treated with Lyclear cream if they have scabies **YES / NO**

Signed: ……..

Northern Territory Guidelines for

Acute Post-Streptococcal Glomerulonephitis

Northern Territory Department of Health and Families
Centre for Disease Control

www.nt.gov.au/health/cdc/cdc.shtml